

Особенности авторизации и аутентификации в ORACLE APEX

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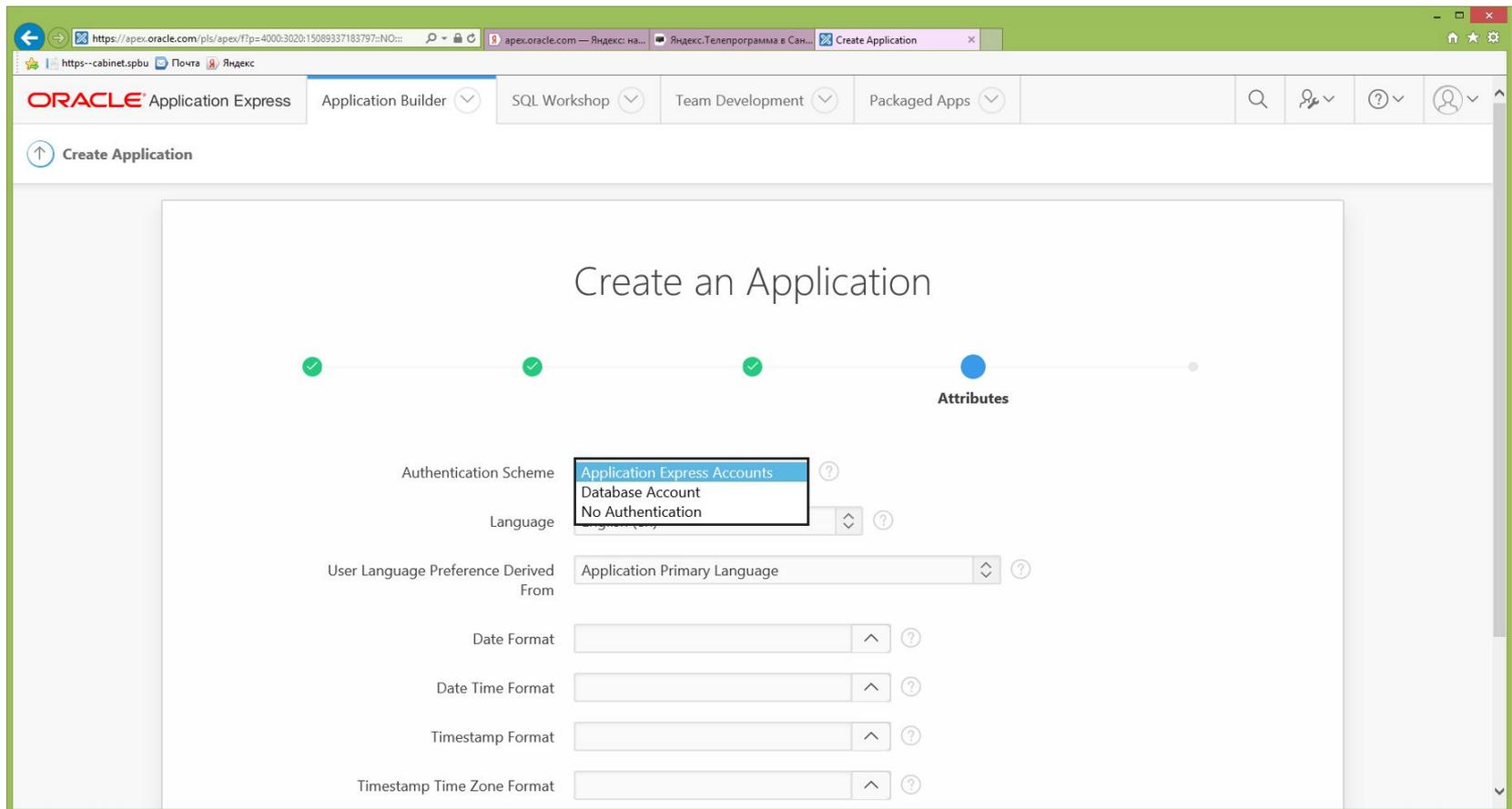
Определения

- Аутентификация - процедура проверки подлинности пользовательских данных (например, имени и пароля).
Авторизация - это процесс предоставления прав на выполнение каких-либо действий (например, просмотр страницы).

Способы аутентификации в ORACLE APEX

- Без аутентификации (встроенная функциональность)
- Аутентификация пользователей БД(встроенная возможность, аутентификацию проходит владелец схемы БД, в которой хранится приложение объекты базы)
- Аутентификация пользователей APEX(встроенная функциональность, аутентификацию проходят пользователи, зарегистрированные в APEX в WORKSPACE соответствующего приложения)
- CUSTOM –аутентификация(процедура аутентификации должна быть описана разработчиком в соответствии с определенными правилами)

Когда устанавливается способ аутентификации (при создании приложения)?



Как можно изменить способ аутентификации для созданного приложения?

- Edit Application Properties -> Security ->
- Authentication -> Define Authentication Schema

Просмотрим список существующих схем и создадим новую (CREATE)

ORACLE Application Express Application Builder SQL Workshop Team Development Packaged Apps

Application 81750 > Shared Components > Authentication Schemes

Authentication Schemes Subscription History

Search: Go Actions Reset Create >

Name	Scheme Type	Subscribed From	Subscribers
Application Express Authentication - Current	Application Express Accounts		

1 - 1

An Authentication Scheme is saved configuration you can apply to your application. To turn off authentication you must create and make current a **No Authentication** scheme.

n.grafeeva@spbu.ru grafeeva en Copyright © 1999, 2015, Oracle. All rights reserved. Application Express 5.0.1.00.06

Выберем источник...

The screenshot shows the Oracle APEX interface for creating an authentication scheme. The breadcrumb trail is: Application 81750 > Shared Components > Authentication Schemes > Create. The main heading is "Create Authentication Scheme". A progress indicator shows the "Method" step is active. The text explains that users can reuse existing implementations or copy pretested schemes. Two radio button options are provided: "Based on a pre-configured scheme from the gallery" (selected) and "As a copy of an existing authentication scheme". At the bottom, there are "Cancel" and "Next >" buttons.

ORACLE Application Express Application Builder SQL Workshop Team Development Packaged Apps

Application 81750 > Shared Components > Authentication Schemes > Create

Create Authentication Scheme

Method

When you create a new authentication scheme, you have several options. Most let you reuse implementations that already exist in your application or in other applications within your workspace. There are even some pretested schemes you can copy to get you up and running immediately.

Create Scheme: **Based on a pre-configured scheme from the gallery** ⓘ
 As a copy of an existing authentication scheme

> **Information**

Cancel Next >

Не забудем дать имя НОВОЙ СХЕМЕ...

The screenshot shows the Oracle APEX interface for creating or editing an authentication scheme. The breadcrumb navigation indicates the path: Application 81750 > Shared Components > Authentication Schemes > Create / Edit. The main heading is 'Authentication Scheme'. There are two buttons: 'Cancel' and 'Create Authentication Scheme'. The form has two fields: 'Name' with the value 'OPEN_DOOR' and 'Scheme Type' with a dropdown menu open. The dropdown menu lists several options, with 'Application Express Accounts' selected. A right-hand sidebar contains explanatory text about authentication schemes and a 'Return to page' link.

Authentication Scheme

Authentication is the process of establishing each user's identity before they can access your application. It may require a user to enter a user name and password or could involve the use of digital certificates or a secure key. Use this page to create or edit Authentication Schemes and set the one which your application is using. The current Authentication Scheme determines how your application identifies and verifies the end user. Depending on the selected Authentication Scheme Type, you can use various settings and program hooks to fine-tune your application's authentication.

Return to page

Установим текущую схему аутентификации (схем у приложения может быть много, но текущая (current) может быть только одна)

The screenshot shows the Oracle Application Express interface for configuring authentication schemes. A green notification banner at the top states: "Action processed. Authentication scheme activated as current authentication scheme." Below this, the "Authentication Schemes" page is displayed with tabs for "Authentication Schemes", "Subscription", and "History". A search bar and "Go" button are present. A table lists the authentication schemes:

Name	Scheme Type	Subscribed From	Subscribers
Application Express Authentication	Application Express Accounts		
No_Auth - Current	No Authentication (using DAD)		
OPEN_DOOR	Open Door Credentials		

At the bottom right of the table, it indicates "1 - 3". The footer of the page includes the user "n.grafeeva@spbu.ru", the name "grafeeva", the language "en", the copyright notice "Copyright © 1999, 2015, Oracle. All rights reserved.", and the version "Application Express 5.0.1.00.06".

Создадим группы пользователей (пригодятся потом при авторизации) Administration->Manage Users and Groups

The screenshot displays the Oracle Application Express interface for creating a user group. The browser address bar shows the URL: `https://apex.oracle.com/pls/apex/f?p=4350:54:15089337183797::NO:54::`. The page title is "Create/Edit User Group".

The navigation menu includes: ORACLE Application Express, Application Builder, SQL Workshop, Team Development, and Packaged Apps. The breadcrumb trail is: Manage Users and Groups > User Group.

The main content area is titled "User Groups" and contains a "Show All" button and tabs for "Group Details" and "Group Grants". The "Group Details" tab is active, showing the following fields:

- Group Name:** ADMIN (required field, indicated by a red asterisk)
- Description:** Администраторы (14 of 4000 characters)

Buttons for "Cancel" and "Create Group" are located at the top right of the form area.

A help sidebar on the right provides information about user groups:

User Groups

You can create user groups to restrict access to various parts of an application. However, user groups are not portable over different authentication schemes. User groups are primarily useful when using Application Express workspace authentication.

To create a new user group, identify the group name and an optional description.

Первая группа (Admin) создана

The screenshot displays the Oracle Application Express interface for managing users and groups. The browser address bar shows the URL: <https://apex.oracle.com/pls/apex/f?p=4350:53:15089337183797::NO::>. The navigation menu includes 'Application Builder', 'SQL Workshop', 'Team Development', and 'Packaged Apps'. The main heading is 'Manage Users and Groups', with sub-tabs for 'Users', 'Groups', and 'Group Assignments'. The 'Groups' tab is active, showing a search bar, a 'Go' button, and a 'Create User Group' button. A table lists the user groups, with one entry visible: 'ADMIN'. The right sidebar contains a 'User Groups' section with explanatory text and a 'Change My Password' link at the bottom.

Group Name	Count
ADMIN	1 - 1

Создадим вторую группу пользователей (USER)

The screenshot shows the Oracle Application Express interface for creating a user group. The browser address bar indicates the URL: <https://apex.oracle.com/pls/apex/f?p=4350:54:15089337183797::NO:54::>. The page title is "Create/Edit User Group".

The main content area is titled "User Groups" and includes a "Cancel" button and a "Create Group" button. Below this is a tabbed interface with "Show All", "Group Details", and "Group Grants". The "Group Details" tab is active, showing the following fields:

- Group Name:** USER
- Description:** группа простых пользователей

The description field has a character count of "28 of 4000".

The right sidebar contains the following text:

User Groups

You can create user groups to restrict access to various parts of an application. However, user groups are not portable over different authentication schemes. User groups are primarily useful when using Application Express workspace authentication.

To create a new user group, identify the group name and an optional description.

Две группы созданы...

The screenshot displays the Oracle Application Express 'Manage Users and Groups' page. The browser address bar shows the URL: <https://apex.oracle.com/pls/apex/f?p=4350:53:15089337183797::NO::>. The page title is 'Manage Users and Groups'. The navigation menu includes 'Application Builder', 'SQL Workshop', 'Team Development', and 'Packaged Apps'. The main content area has tabs for 'Users', 'Groups', and 'Group Assignments', with 'Groups' selected. A search bar is present with a 'Go' button and a 'Create User Group' button. Below the search bar, two user groups are listed: 'ADMIN' and 'USER'. The right sidebar contains a 'User Groups' section with a description: 'User groups enable you to restrict access to various parts of an application. User groups are not portable over different authentication schemes and are primarily useful when using Application Express Account Credentials authentication. To edit an existing user group, select it. Click **Create** to create a new group.' Below this is a 'Tasks' section with a 'Change My Password' link.

Group Name	Count
ADMIN	1
USER	1

Начнем создавать пользователей

ORACLE Application Express Application Builder SQL Workshop Team Development Packaged Apps

Manage Users and Groups > Create User

Create User

Cancel Create and Create Another **Create User**

Show All **User Identification** Account Privileges Password Group Assignments

User Identification

* Username ?

* Email Address x ?

First Name ?

Last Name ?

Description ?

Default Date Format ?

Account Privileges

Default Schema ?

Accessible Schemas (null for all) ?

Users

Use this page to control access for Application Express application developers, workspace administrators and end users.

Developers can create and edit applications as well as create and modify database objects.

Workspace administrators can additionally create and edit user accounts, manage groups, manage development services.

End users have no development privileges and are defined to provide access control to applications that do not use an external authentication scheme.

На пользователей, приписанных к группам, можно посмотреть через представление

APEX_WORKSPACE_GROUP_USERS

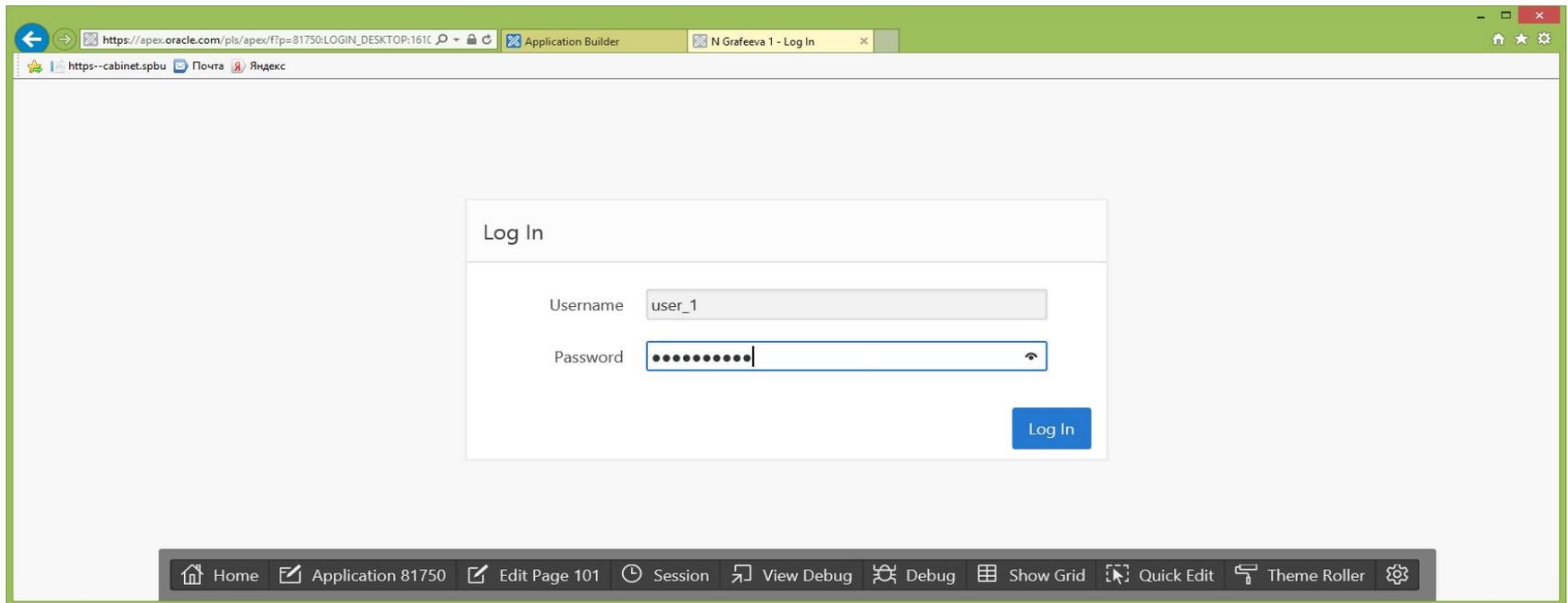
The screenshot shows the Oracle APEX SQL Workshop interface. The browser address bar displays the URL: `https://apex.oracle.com/pls/apex/?p=4500:1003:112809935745286`. The page title is "SQL Commands". The navigation menu includes "ORACLE Application Express", "Application Builder", "SQL Workshop", "Team Development", and "Packaged Apps". The current schema is "GRAFEeva". The SQL command entered is `select * from apex_workspace_group_users`. The results are displayed in a table with 2 rows.

WORKSPACE_ID	WORKSPACE_NAME	WORKSPACE_DISPLAY_NAME	USER_NAME	GROUP_NAME
12443959264218247255	GRAFEeva	GRAFEeva	ADMIN_1	ADMIN
12443959264218247255	GRAFEeva	GRAFEeva	USER_1	USER

2 rows returned in 1.14 seconds [Download](#)

Footer: n.grafeeva@spbu.ru | grafeeva | en | Copyright © 1999, 2015, Oracle. All rights reserved. | Application Express 5.0.1.00.06

Убедимся, что созданных пользователей пустят в приложение со схемой аутентификации APEX_AUTH



Пустили...

The screenshot displays an Oracle APEX application interface. The browser address bar shows the URL: `https://apex.oracle.com/pls/apex/f?p=81750:2:16100307404148::...`. The application header includes the user name "N Grafeva 1" and a "Log Out" link. The left sidebar contains navigation links for "Dept" and "Home". The main content area is titled "Dept" and features a search bar with a "Go" button and an "Actions" dropdown menu. Below the search bar is a table with the following data:

	Deptno	Dname	Loc
	10	ACCOUNTING	NEW YORK
	20	RESEARCH	DALLAS
	30	SALES	CHICAGO
	40	OPERATIONS	BOSTON

At the bottom right of the table, the pagination indicator "1 - 4" is visible. The application footer contains various utility icons and labels: Home, Application 81750, Edit Page 2, Session, View Debug, Debug, Show Grid, Quick Edit, Theme Roller, and a settings gear icon.

Теперь займемся вопросами
авторизации

Создадим схемы авторизации (Shared Components ->Security->Authorization Schemas)

The screenshot shows the Oracle Application Express interface. The browser address bar displays the URL: <https://apex.oracle.com/pls/apex/f?p=4000:4070:112809935745286::>. The page title is "Authorization Schemas". The breadcrumb navigation shows "Application 81750 > Shared Components > Authorization Schemas". The main content area is empty, displaying a magnifying glass icon and the text "No data found.". The right sidebar contains the following text:

Authorization Schemas

You manage authorization for applications, pages, and most other components using Authorization Schemas.

You associate an Authorization Scheme with an application, page, or other component on the component's attributes page.

Authorization Schemas are pass/fail checks. Common Authorization Scheme types include Exists, Not Exists SQL Queries, and PL/SQL Function Returning Boolean.

To enhance performance, the success or failure of an Authorization Scheme is cached on a per session or per page view basis.

At the bottom of the page, the footer includes the user email n.grafeeva@spbu.ru, the name [grafeeva](#), the language [en](#), the copyright notice "Copyright © 1999, 2015, Oracle. All rights reserved.", and the version "Application Express 5.0.1.00.06".

С чистого листа (from scratch)...

The screenshot shows the Oracle Application Express interface. A modal dialog titled "Create Authorization Scheme" is open. The dialog has a progress indicator at the top with a blue dot at the first step, labeled "Creation Method". Below the title, there is a paragraph of text: "Specify how you want to create your authorization scheme. You can create an authorization scheme from scratch or copy it from another application. If you copy an authorization scheme, you can modify later." Underneath, there are two radio button options: "From Scratch" (which is selected) and "As a Copy of an Existing Authorization Scheme". At the bottom left of the dialog is a "Cancel" button, and at the bottom right is a "Next >" button. The background shows the Oracle Application Express navigation bar with tabs for "Application Builder", "SQL Workshop", "Team Development", and "Packaged Apps". The left sidebar shows "Application 81750" and "Authorization Schemes". The bottom status bar shows the user "n.grafeeva@spbu.ru" and the version "Application Express 5.0.1.00.06".

ORACLE Application Express

Application Builder SQL Workshop Team Development Packaged Apps

Create Authorization Scheme

Creation Method

Specify how you want to create your authorization scheme. You can create an authorization scheme from scratch or copy it from another application. If you copy an authorization scheme, you can modify later.

Create Authorization Scheme: **From Scratch** As a Copy of an Existing Authorization Scheme

Cancel Next >

n.grafeeva@spbu.ru Application Express 5.0.1.00.06

В основе схемы авторизации – SQL запрос с использованием системной переменной :APP_USER и представления APEX_WORKSPACE_GROUP_USERS

Application: **81750 N Grafeeva 1** ?

* Name: ADMIN_SCHEME ?

* Scheme Type: Exists SQL Query ?

* SQL Query: SELECT NULL
FROM APEX_WORKSPACE_GROUP_USERS
WHERE USER_NAME = :APP_USER
AND GROUP_NAME = 'ADMIN' ?

* Identify error message displayed when scheme violated: У вас нет прав для просмотра этой страницы!

Buttons: < Cancel Create Authorization Scheme

Создадим еще одну схему авторизации

The screenshot shows the Oracle Application Express interface with a modal dialog titled "Create Authorization Scheme". The dialog is currently on the "Creation Method" step, indicated by a blue dot on a progress bar. The text inside the dialog reads: "Specify how you want to create your authorization scheme. You can create an authorization scheme from scratch or copy it from another application. If you copy an authorization scheme, you can modify later." Below this text, there are two radio button options: "From Scratch" (which is selected) and "As a Copy of an Existing Authorization Scheme". At the bottom of the dialog, there are "Cancel" and "Next >" buttons. The background shows the Oracle Application Express navigation bar with tabs for "Application Builder", "SQL Workshop", "Team Development", and "Packaged Apps". The left sidebar shows the "Authorization Schemes" section with a search bar and a list of schemes, including "ADMIN_SCHEME". The bottom of the page shows the user's email "n.grafeeva@spbu.ru" and the version "Application Express 5.0.1.00.06".

Назовем ее USER_SCHEME

The screenshot shows the Oracle APEX interface with a modal dialog titled "Create Authorization Scheme". The dialog is in the "Details" tab and contains the following information:

- Application: 81750 N Grafeeva 1
- Name: USER_SCHEME
- Scheme Type: Exists SQL Query
- SQL Query:

```
SELECT NULL
FROM APEX_WORKSPACE_GROUP_USERS
WHERE USER_NAME = :APP_USER
AND GROUP_NAME = 'USER'
```

At the bottom of the dialog, there is a "Cancel" button on the left and a "Create Authorization Scheme" button on the right. A message at the bottom of the dialog reads: "У Вас нет прав для просмотра этой страницы!".

Вот полный список схем авторизации

Application 81750 > Shared Components > Authorization Schemes

Authorization Schemes Subscription by Component Utilization History

Search: Go

Name	Type	Caching	Subscribed From	Subscribers	Updated
ADMIN_SCHEME	Exists SQL Query	Once per session			5 minutes ago
USER_SCHEME	Exists SQL Query	Once per session			2 seconds ago

1 - 2

Authorization Schemes

You manage authorization for applications, pages, and most other components using Authorization Schemes.

You associate an Authorization Scheme with an application, page, or other component on the component's attributes page.

Authorization Schemes are pass/fail checks. Common Authorization Scheme types include Exists, Not Exists SQL Queries, and PL/SQL Function Returning Boolean.

To enhance performance, the success or failure of an Authorization Scheme is cached on a per session or per page view basis.

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Установим схемы авторизации для страниц приложения

The screenshot displays the Oracle APEX Page Designer interface. At the top, a green notification bar indicates "Changes saved". The main workspace shows a page layout for "Page 2: Dept" with a grid structure including PAGE HEADER, PAGE NAVIGATION, BREADCRUMB BAR, and a main content area with Breadcrumbs, ITEMS, REGION CONTENT, and SUB REGIONS. The left sidebar shows the page structure tree, with "DEPT" selected under "Content Body". The bottom of the workspace features a palette of components: Breadcrumb, Calendar, Chart, Classic Report, Classic Report, Help Text, Interactive Report, and Legacy Calendar. On the right, the "Page" properties panel is open, showing the "Security" section where the "Authorization Scheme" is set to "ADMIN_SCHEM" and the "Authentication" is set to "Page Requires Authen".